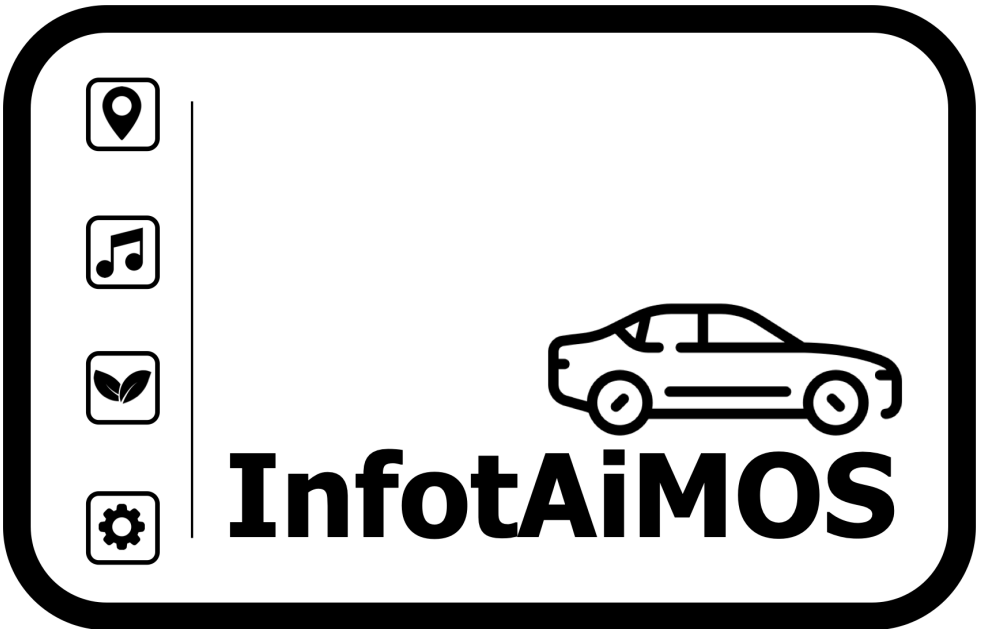
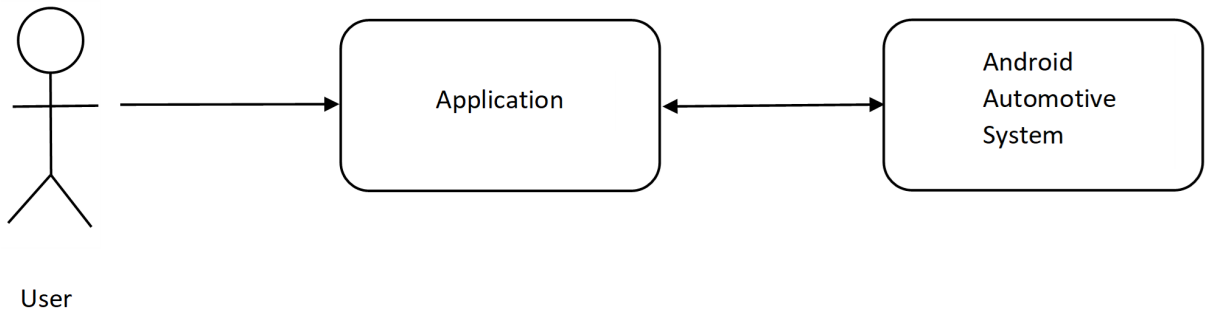
Software Architecture

AMOS WS2022/23

Project 2 - Android Automotive Test App

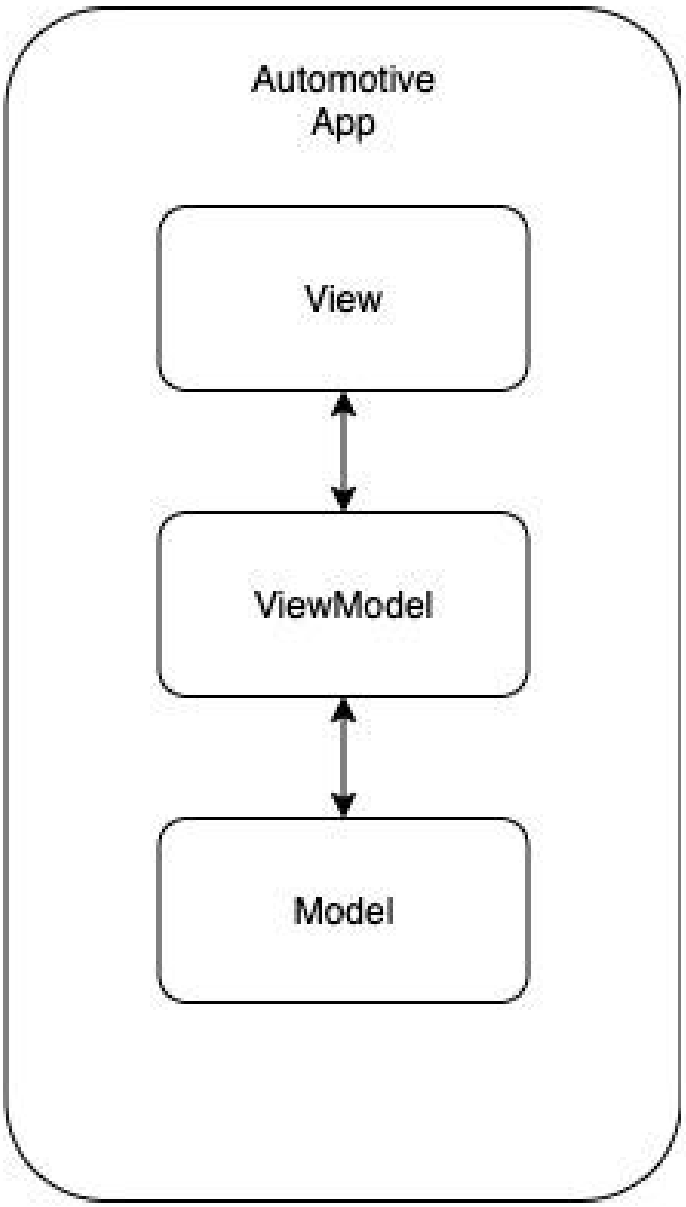


Runtime Components



The overall goal of the project is, to develop an application, to simulate different use cases, e.g. starting a navigation, playing media, pressing a button etc. To obtain these functionality the project is divided into the following runtime components. The core part is the Automotive Test App, supported by Android Automotive, which is an Android-based infotainment system that is built into vehicles. The user interacts with the Graphical User Interface (GUI) of the App.

Code Components



The app is structured into 3 components of the MVVM-Pattern. All classes for handling user interface elements are grouped into the **View** component. View classes pass their user interactions to **ViewModel** classes and retrieve data for displaying purposes from their respective ViewModels. ViewModel classes process user interactions and provide app data from **Model** classes. Model component classes implement services for simulating service features and provide data classes.

Technology Stack

Android App:

- Programming language: Kotlin, XML
- Build System: Gradle

Development:

- IDE: Android Studio
- Version Control: Git
- Linter: Ktlint

In this project we are using Kotlin as our programming language. It is the most commonly used language to write android applications. XML is being used for the resource files. Gradle is our Build System to manage the dependencies but also to build the app and provide tasks for linting, the execution of all tests and more. Android Studio is our IDE of choice because it provides great support for android development and has an integrated emulator to test the application. To keep the code styling consistent, Ktlint is added as a dependency to our project to auto-format the Code. Git will be our version control system, where we store and manage our sourcecode and the featureboard including issues.